CLAIMS:

1. A method of forming an electrically conducting feedthrough comprising the steps of:

(i) forming an electrically conductive structure comprising a sacrificial component and a non-sacrificial component;

(ii) coating at least a portion of the non-sacrificial component with a relatively electrically insulating material; and

(iii) removing at least a portion of the sacrificial component from the electrically conductive structure.

2. The method of forming an electrically conducting feedthrough of claim 1 wherein the electrically insulating material is a ceramic material.

3. The method of forming an electrically conducting feedthrough of claim 1 wherein the electrically insulating material is coated on the non-sacrificial component and not coated on to any portion of the sacrificial component of the conductive structure.

4. The method of forming an electrically conducting feedthrough of claim 1 wherein the electrically conductive structure is selected from the group comprising a metal, a metal alloy, an electrically conductive ceramic, an electrically conductive composite, and an intrinsically or extrinsically electrically conductive polymer.

5. The method of forming an electrically conducting feedthrough of claim 4 wherein the electrically conductive structure is formed from a film or shim of platinum.

6. The method of forming an electrically conducting feedthrough of claim 5 wherein the film or shim has a shape comprising two or more conductive elements extending between respective transverse support members.

7. The method of forming an electrically conducting feedthrough of claim 6 wherein at least one of the conductive elements is linear.

8. The method of forming an electrically conducting feedthrough of claim 6 wherein at least one of the conductive elements is non-linear.

9. The method of forming an electrically conducting feedthrough of claim 6 wherein at least one of the conductive elements has a length that is greater than the shortest distance between the respective transverse support members.

10. The method of forming an electrically conducting feedthrough of claim 6 wherein at least one of the conductive elements has a surface that is non-linear.

11. The method of forming an electrically conducting feedthrough of claim 6 wherein at least one of the conductive elements has a surface that defines an interface path between the conductive element and the insulating material that is longer than the shortest distance between the respective transverse support members.

12. The method of forming an electrically conducting feedthrough of claim 1 wherein the shape of the electrically conductive structure is formed in step (i) by punching the shape from a film of electrically conductive material.

13. The method of forming an electrically conducting feedthrough of claim 1 wherein the shape of the electrically conductive structure is formed in step (i) by using electrical discharge machining (EDM) to remove unwanted portions of the film.

14. The method of forming an electrically conducting feedthrough of claim 1 wherein step (i) comprises the steps of:

(a) forming a relatively electrically insulating disc having an outer periphery defining a plurality of outwardly extending teeth having notches therebetween; and

(b) winding an electrically conductive element around the disc such that at least some of the notches have a portion of the conductive element passing therethrough.

15. The method of forming an electrically conducting feedthrough of claim 14 wherein the electrically insulating disc is formed of a ceramic material.

16. The method of forming an electrically conducting feedthrough of claim 15 wherein the electrically conductive element is a platinum metal wire.

17. The method of forming an electrically conducting feedthrough of claim 1 wherein step (i) comprises a step of forming a film of platinum having a plurality of integrally attached substantially elongate members extending outwardly from at least a portion of the periphery thereof.

18. The method of forming an electrically conducting feedthrough of claim 17 wherein the elongate members extend outwardly and in a direction out of the plane of the film.

19. The method of forming an electrically conducting feedthrough of claim 18 wherein at least three sides of the film have elongate members extending at least out of the plane of the film.

20. The method of forming an electrically conducting feedthrough of claim 1 wherein step (i) comprises a step of spirally coiling an electrically conductive metal wire along at least a portion of a length of a screw thread.

21. The method of forming an electrically conducting feedthrough of claim 1 wherein step (ii) comprises a step of mounting or clamping the electrically conductive structure in a mould and then moulding a coating of the insulating material around the conductive structure.

22. The method of forming an electrically conducting feedthrough of claim 6 wherein the electrically insulating material is moulded around at least a portion of the conductive elements of the conductive structure.

23. The method of forming an electrically conducting feedthrough of claim 14 wherein the electrically insulating material is moulded around the disc such that at least those portions of the conductive element passing through the notches of the disc are encapsulated in the insulating material.

24. The method of forming an electrically conducting feedthrough of claim 17 wherein the insulating material is moulded to both sides of the film and elongate members, thereby encapsulating at least a portion of the members in the insulating material.

25. The method of forming an electrically conducting feedthrough of claim 20 wherein once the wire is positioned around the screw thread, an insulating layer is moulded around the thread and the wire.

26. The method of forming an electrically conducting feedthrough of claim 25 wherein once the insulating layer has at least partially cured, the screw thread is withdrawn from the insulating material so leaving the coiled wire embedded within the inner surface of the insulating layer, the inner surface defining an orifice.

27. The method of forming an electrically conducting feedthrough of claim 26 wherein the orifice left by the withdrawal of the screw thread is filled with insulating material.

28. The method of forming an electrically conducting feedthrough of claim 1 wherein step (ii) comprises a step of using powder injection moulding (PIM) to mould the insulating material around said portion of the conductive structure.

29. The method of forming an electrically conducting feedthrough of claim 1 further comprising a step of mounting the feedthrough in an orifice in the wall of a unit adapted to receive the feedthrough.

30. A feedthrough comprised of one or more relatively electrically conductive structures extending through and embedded within a relatively electrically insulating body when formed using the method of claim 1.

31. A feedthrough comprised of one or more relatively electrically conductive structures extending through and embedded within a relatively electrically insulating body, wherein the one or more electrically conductive structures are formed from a film or shim of an electrically conductive metal or metal alloy.

32. The feedthrough of claim 31 wherein the film or shim is formed of platinum.

33. The feedthrough of claim 31 wherein the electrically insulating body is formed of a ceramic.

34. An electrically conducting feedthrough comprising:

a relatively electrically insulating member having a first face and at least a second face; and

at least one electrically conductive member extending through at least a portion of the electrically insulative member from the first face to the second face;

wherein said at least one conductive member is non-linear between said first face and said second face.

35. An electrically conducting feedthrough comprising:

a relatively electrically insulative member having a first face and at least a second face; and

at least one relatively electrically conductive member extending through at least a portion of the electrically insulative member from the first face to the second face;

wherein said at least one conductive member has a length between said first face and second face that is greater than the shortest distance between said first face and said second face.

36. An electrically conducting feedthrough comprising:

a relatively electrically insulative member having a first face and at least a second face; and

at least one relatively electrically conductive member having an outer surface and extending through at least a portion of the electrically insulative member from the first face to the second face;

wherein at least a portion of the outer surface of said at least one conductive member is non-linear between said first face and said second face.

37. An electrically conducting feedthrough comprising:

a relatively electrically insulative member having a first face and at least a second face; and

at least one relatively electrically conductive member having an outer surface and extending through at least a portion of the electrically insulative member from the first face to the second face;

wherein at least a portion of the outer surface of said at least one conductive member defines an interface path between the conductive element and the insulating material that is greater than the shortest distance between said first face and said second face.

38. The electrically conducting feedthrough of any one of claims 34-37 wherein the first face and second face of the insulating member face outwardly in opposite directions.

39. The electrically conducting feedthrough of claim 38 wherein the first and second faces are at least substantially parallel.

40. An electrically conducting feedthrough comprising:

a relatively electrically insulating member having a first face and at least a second face; and

a plurality of electrically conductive members each having a first end and a second end and extending through at least a portion of the insulative member from said first end at or adjacent the first face to said second end at or adjacent the second face of the insulative member;

wherein the configuration of the first ends of the conductive members relative to each other at or adjacent the first face of the insulative member is different to the configuration of the second ends of the conductive members relative to each other at or adjacent the second face of the insulative member.

41. The electrically conducting feedthrough of claim 40 wherein the respective configurations of the first ends and the second ends of the conductive members are such that the number of first ends of the conductive members per a defined unit area at or adjacent the first face of the insulating member is different to the number of second ends of the conductive members per said defined unit area at or adjacent the second face of the insulating member.

42. The electrically conducting feedthrough of claim 40 wherein the respective configurations of the first ends and the second ends of the conductive members are such that the spacing between the first ends of the conductive members at or adjacent the first face of the insulating member is different to the spacing between the second ends of the conductive members at or adjacent the second face of the insulating member.

43. The electrically conducting feedthrough of any one of claims 34-37 and 40 wherein the feedthrough comprises two or more groups of said plurality of electrically conductive members.

44. The electrically conducting feedthrough of claim 43 wherein each conductive member in a group is identical in configuration to the other conductive members in a group.

45. The electrically conducting feedthrough of claim 43 wherein the conductive members of one group are different in configuration to one or more of the conductive members of another group of the feedthrough.

46. The electrically conducting feedthrough of claim 43 wherein each group comprises a series of conductive members in side-by-side relationship, with said two or more groups layered one on top of the other.

47. The electrically conducting feedthrough of claim 46 wherein the groups are such that the conductive members of one group are off-set relative to the conductive members of an adjacent group.

48. The electrically conducting feedthrough of claim 40 wherein the dimension and/or shape of the first ends of said conductive members are different from the dimension and/or shape of the second ends of the conductive members.

49. An implantable device having a housing and further wherein a feedthrough according to any one of claims 34-37 and 40 is mounted in a wall of the housing.

50. The implantable device of claim 49 wherein the device is a cochlear implant hearing prosthesis and the feedthrough provides electrical conduction between the circuitry within an implantable stimulator unit of said prosthesis and one or more intracochlear or extracochlear electrodes and/or an implantable receiver coil.